

# (12) United States Patent Kim

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(54)		A DEVICE INSTALLED IN FLIP OF FLIP-UP TYPE PORTABLE			
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(56)	References Cited				
	U.	S. PATENT DOCUMENTS			

5,170,173 \* 12/1992 Krenz et al. ...... 343/702 

5,513,383	*	4/1996	Tsao	343/702
5,945,954	*	8/1999	Johnson	343/702
			Ito et al	
6,011,519	*	1/2000	Sadler et al	343/742
6,031,495	*	2/2000	Simmons et al	343/702

## FOREIGN PATENT DOCUMENTS

323 614 A2	7/1989	(EP) .
0 661 825 A1	7/1995	(EP) .
0 928 092 A2	7/1999	(EP) .
2 601 211	1/1988	(FR) .
2 293 275 A	3/1996	(GB) .
WO 99 43042	8/1999	(WO).

<sup>\*</sup> cited by examiner

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#### **ABSTRACT** (57)

An antenna device installed in a cover of a flip-up or folder type portable phone. In the flip-up type portable phone, a body of the phone has an exposed LCD (Liquid Crystal Display) and a main board. The flip cover is mechanically connected to the body by hinges and has necks extended from both sides of the flip cover, at least one of the necks including a duct. The antenna device has a portion fixed in the cover and a portion inserted into the duct and is electrically connected to the main board of the body.

### 12 Claims, 9 Drawing Sheets

